

We claim:

1. A crystalline parecoxib sodium form I, characterized by an x-ray powder diffraction pattern having peaks expressed as  $2\theta$  at about 5.7, 8.3, 10.4,  
5 17.4, 21.0 and 23.2 degrees.
2. A crystalline parecoxib sodium form I as defined in claim 1, further characterized by an x-ray powder diffraction pattern as in figure 1.
3. A crystalline parecoxib sodium form II, characterized by an x-ray powder diffraction pattern having peaks expressed as  $2\theta$  at about 5.4, 6.8, 7.9, 10.6,  
10 16.2, 17.1, 19.5, 20.4 and 22.4 degrees.
4. A crystalline parecoxib sodium form II as defined in claim 3, further characterized by an x-ray powder diffraction pattern as in figure 2.
5. A crystalline parecoxib sodium form III, characterized by an x-ray powder diffraction pattern having peaks expressed as  $2\theta$  at about 5.3, 5.9, 6.6, 7.8,  
15 8.3, 10.7, 11.9, 12.2, 16.1, 19.5, 20.0, 21.6, 23.4 and 30.1 degrees.
6. A crystalline parecoxib sodium form III as defined in claim 5, further characterized by an x-ray powder diffraction pattern as in figure 3.
7. A crystalline parecoxib sodium form IV, characterized by an x-ray powder diffraction pattern having peaks expressed as  $2\theta$  at about 5.2, 7.9, 12.1,  
20 17.3, 17.9, 22.5, 23.4 and 27.1 degrees.
8. A crystalline parecoxib sodium form IV as defined in claim 7, further characterized by an x-ray powder diffraction pattern as in figure 4.
9. A crystalline parecoxib sodium form V, characterized by an x-ray powder diffraction pattern having peaks expressed as  $2\theta$  at about 6.5, 7.7, 9.3, 10.6,  
25 13.2, 15.5, 15.9, 17.4, 17.8, 20.2, 21.7, 22.1, 22.8, 23.4 and 24.3 degrees.
10. A crystalline parecoxib sodium form V as defined in claim 9, further characterized by an x-ray powder diffraction pattern as in figure 5.
11. A crystalline parecoxib sodium form VI, characterized by an x-ray powder diffraction pattern having peaks expressed as  $2\theta$  at about 5.4, 7.9, 9.5, 11.9,  
30 18.1, 18.6, 20.9, 30.2 and 32.1 degrees.
12. A crystalline parecoxib sodium form VI as defined in claim 11, further characterized by an x-ray powder diffraction pattern as in figure 6.
13. A process for preparation of parecoxib sodium form I as defined in claim 1, which comprises the steps of:

- a) mixing together i) either 1) parecoxib sodium or 2) parecoxib and an sodium metal carrier, and
    - ii) an alcohol solvent; and
  - b) isolating parecoxib sodium form I from the mixture;
- 5 wherein the alcohol solvent is selected from the group consisting of methanol, ethanol, isopropyl alcohol, tert-butyl alcohol and n-butyl alcohol.
14. A process according to claim 13, wherein sodium metal carrier is sodium hydroxide.
15. A process according to claim 13, wherein the alcohol solvent is ethanol.
- 10 16. A process for preparation of parecoxib sodium form II as defined in claim 3, which comprises the steps of:
- a) mixing together i) either 1) parecoxib sodium or 2) parecoxib and an sodium metal carrier, and
    - ii) acetonitrile; and
  - 15 b) isolating parecoxib sodium form II from the mixture.
17. A process according to claim 16, wherein sodium metal carrier is sodium hydroxide.
18. A process for preparation of parecoxib sodium form III as defined in claim 5, which comprises the steps of:
- 20 a) mixing together i) either 1) parecoxib sodium or 2) parecoxib and an sodium metal carrier, and
  - ii) tetrahydrofuran; and
- b) isolating parecoxib sodium form III from the mixture.
19. A process according to claim 18, wherein sodium metal carrier is sodium
- 25 hydroxide.
20. A process for preparation of parecoxib sodium form IV as defined in claim 7, which comprises the steps of:
- a) mixing together i) either 1) parecoxib sodium or 2) parecoxib and an sodium metal carrier, and
    - 30 ii) an ether solvent; and
  - b) isolating parecoxib sodium form IV from the mixture;
- wherein the ether solvent is selected from the group consisting of diethyl ether, diisopropyl ether and methyl tert-butyl ether.

21. A process according to claim 20, wherein sodium metal carrier is sodium hydroxide.
22. A process according to claim 20, wherein the ether solvent is methyl tert-butyl ether.
- 5 23. A process for preparation of parecoxib sodium form V as defined in claim 9, which comprises the steps of:
- a) mixing together i) either 1) parecoxib sodium or 2) parecoxib and an sodium metal carrier, and
- 10 b) isolating parecoxib sodium form V from the mixture;
- wherein the ester solvent is selected from the group consisting of ethyl acetate, methyl acetate, isopropyl acetate, tert-butyl acetate, ethyl formate and methyl formate.
24. A process according to claim 23, wherein sodium metal carrier is sodium
- 15 hydroxide.
25. A process according to claim 23, wherein the ether solvent is ethyl acetate.
26. A process for preparation of parecoxib sodium form VI as defined in claim 11, which comprises the steps of:
- a) mixing together i) either 1) parecoxib sodium or 2) parecoxib and an sodium
- 20 metal carrier, and
- ii) an ketone solvent; and
- b) isolating parecoxib sodium form VI from the mixture;
- wherein the ketone solvent is selected from the group consisting of acetone, diethyl ketone, methyl ethyl ketone, methyl isobutyl ketone and methyl propyl
- 25 ketone.
27. A process according to claim 26, wherein sodium metal carrier is sodium hydroxide.
28. A process according to claim 26, wherein the ketone solvent is acetone.
29. A process according to claim 13, wherein parecoxib sodium is selected from
- 30 the group consisting of form II of claim 3, form III of claim 5, form IV of claim 7, form V of claim 9 and form VI of claim 11.
30. A process according to claim 16, wherein parecoxib sodium is selected from the group consisting of form I of claim 1, form III of claim 5, form IV of claim 7, form V of claim 9 and form VI of claim 11.

31. A process according to claim 18, wherein parecoxib sodium is selected from the group consisting of form I of claim 1, form II of claim 3, form IV of claim 7, form V of claim 9 and form VI of claim 11.
32. A process according to claim 20, wherein parecoxib sodium is selected from the group consisting of form I of claim 1, form II of claim 3, form III of claim 5, form V of claim 9 and form VI of claim 11.
33. A process according to claim 23, wherein parecoxib sodium is selected from the group consisting of form I of claim 1, form II of claim 3, form III of claim 5, form IV of claim 7 and form VI of claim 11.
34. A process according to claim 26, wherein parecoxib sodium is selected from the group consisting of form I of claim 1, form II of claim 3, form III of claim 5, form IV of claim 7 and form V of claim 9.
35. A pharmaceutical composition comprising parecoxib sodium form I of claim 1 and a pharmaceutically acceptable carrier or diluent.
36. A pharmaceutical composition comprising parecoxib sodium form II of claim 3 and a pharmaceutically acceptable carrier or diluent.
37. A pharmaceutical composition comprising parecoxib sodium form III of claim 5 and a pharmaceutically acceptable carrier or diluent.
38. A pharmaceutical composition comprising parecoxib sodium form IV of claim 7 and a pharmaceutically acceptable carrier or diluent.
39. A pharmaceutical composition comprising parecoxib sodium form V of claim 9 and a pharmaceutically acceptable carrier or diluent.
40. A pharmaceutical composition comprising parecoxib sodium form VI of claim 11 and a pharmaceutically acceptable carrier or diluent.